

WHAT IS CLAIMED IS:

1. An illumination device comprising:
a light guide including a light guide core having an optically smooth surface for
5 propagating light therethrough and a light emitting region extending along a portion of the core,
the light emitting region including:
at least one light extraction structure located along the optically smooth surface of
the light guide core, said light extraction structure including an optically reflective
surface extending into the light guide core and oriented to reflect light at an angle less
10 than a critical angle necessary for light to propagate through the light guide core; and
a diffuse reflective material disposed around at least a portion of the light guide to
direct at least a portion of the light reflected by the light extraction structure back through the
light guide core so that light is emitted through the light emitting region of the optically smooth
surface.
15
2. The device of claim 1 wherein said light guide is a light fiber.
3. The device of claim 1 wherein said light guide has a circular cross-sectional
20 shape.
4. The device of claim 1 wherein said light guide is a planar light guide.
5. The device of claim 1 further comprising a plurality of light extraction structures
distributed along the optically smooth surface of the light guide core.
25
6. The device of claim 5 wherein the plurality of light extraction structures are
equally spaced apart from one another along the optically smooth surface.

7. The device of claim 5 wherein the plurality of light extraction structures are unequally spaced apart from one another along the optically smooth surface.

5 8. The device of claim 1 wherein said light guide is formed from a polymerizable material.

9. The device of claim 8 wherein said polymerizable material is an acrylate material.

10 10. The device of claim 9 wherein said polymerizable material is a urethane material.

11. The device of claim 1 further comprising a cladding material surrounding the light guide core.

15 12. The device of claim 11 wherein the diffuse reflective sheet material is disposed around a portion of the cladding.

20 13. The device of claim 1 wherein the diffuse reflective sheet material comprises a polymeric material.

25 14. The device of claim 1 wherein the diffuse reflective sheet material comprises a microvoided material.

15. The device of claim 1 wherein the diffuse reflective sheet material is a material formed by thermally induced phase separation.

16. The device of claim 1 wherein the diffuse reflective material comprises a microporous material.

Docket No. 53714USA6B

17. The device of claim 16 wherein the microporous material comprises polytetrafluoroethylene.

18. The device of claim 1 wherein the light guide is constructed in the form of a predetermined shape to at least partially resemble a letter numeral, or symbol.

add
B4